

# **KANSAS**

# **Agricultural Chemical Usage**

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## **1998 Wheat and Sorghum Pesticide Summary**

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Cooperative Extension Service • Kansas State University • Manhattan

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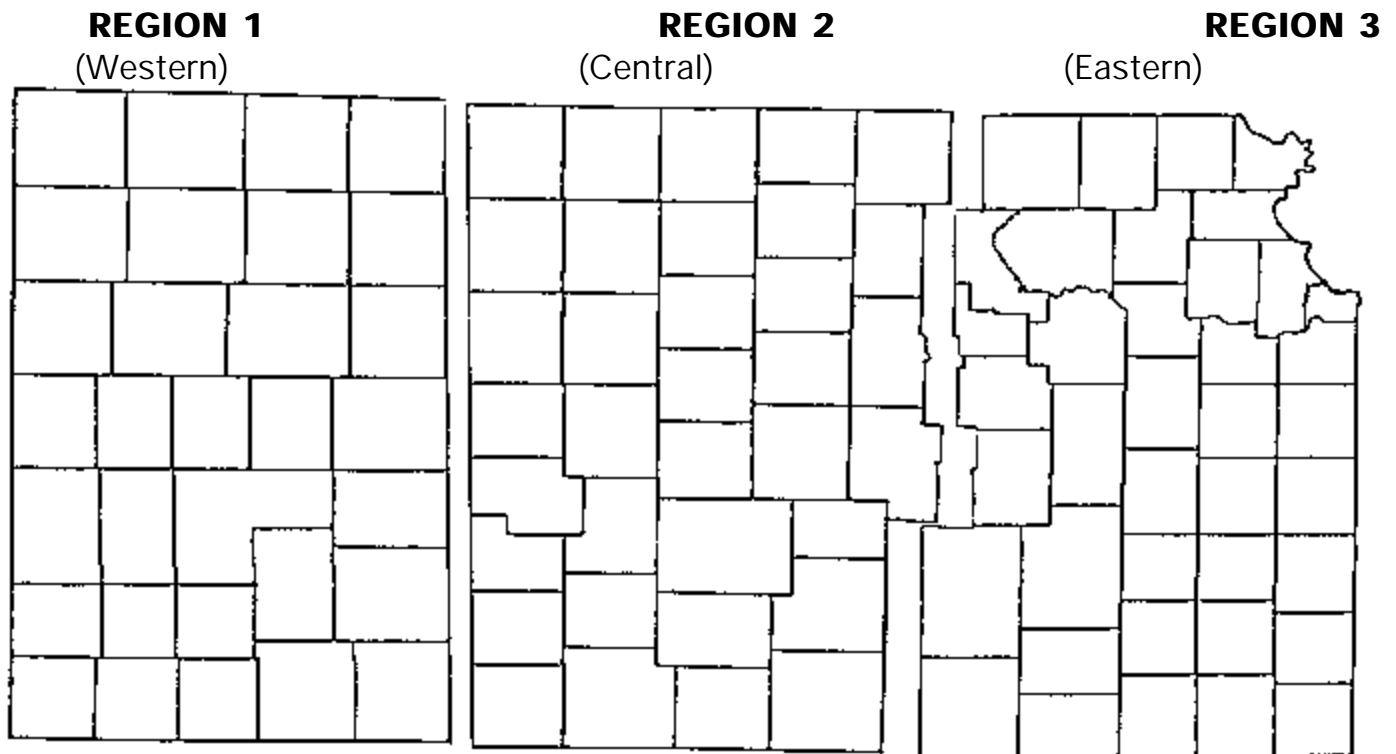
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# OVERVIEW

The data presented in this publication were funded through Kansas State Research and Extension and USDA's National Pesticide Impact Assessment Program.

This initiative is designed to provide farmers and ranchers the knowledge and technical means to respond independently and voluntarily to on- and off-farm environmental concerns. In the past, farm level data have been inadequate to determine the magnitude of water quality problems or the benefits and costs of alternative solutions for the farmer and other affected parties. These data will help fill some of the data needs that analysts require to find solutions to the complex environmental issues on into the next century.

On-farm fertilizer and chemical use data for 1998 Kansas wheat and sorghum are included in this publication. For purposes of this survey, the State of Kansas was divided into three regions which can be described as Western, Central, and Eastern Kansas. The map below outlines the boundaries that were used.



The information presented in this publication is a result of a sample survey conducted during the winter and spring of 1998. Data were collected for chemical usage for wheat and sorghum in October 1998. A total of 363 wheat sample fields were selected for the 1998 survey with 293 useable reports. For sorghum, 330 sample fields were selected, resulting in 277 useable reports. No data are published in this report unless at least 5 reports were received for that particular fertilizer or pesticide application.

# WHEAT HIGHLIGHTS

Kansas wheat production totaled 494.9 million bushels in 1998, down slightly from 1997's record high production of 501.4 million bushels. The average yield per acre in 1998 was a record high 49.0 bushels per acre, surpassed the previous high of 46.0 bushels per acre in 1997.

In 1998, nitrogen was applied to 92 percent of the wheat acres in Kansas, with an average application rate for the season of 60 pounds per acre. A similar survey was conducted in 1991. At that time, 89 percent of the acres had nitrogen applied at the rate of 58 pounds for the season. The most common method of application for nitrogen was injecting it into the soil. Fifty-seven percent of the acres had nitrogen applied before seeding, 16 percent at seeding, and 18 percent after seeding.

Phosphate was applied to 74 percent of the wheat acres in Kansas, with an average application rate of 31 pounds per acre. This compares to 33 pounds applied to 53 percent of the acreage in 1991. The most common method of applying phosphate in 1998, was by either broadcasting with incorporation or in seed rows. Application was most commonly done before seeding. Application method and timing follow closely the findings of the survey conducted in 1991.

Thirteen percent of wheat acres in Kansas received an application of potash in 1998, compared to ten percent in 1991. The average application rate per season was 36 pounds per acre compared to 34 pounds in 1991. Potash was most commonly applied by broadcasting with or without incorporation before seeding.

Thirty-five percent of the State's wheat acres had some type of herbicide applied. In 1991, only 20 percent of the acres received treatments. Overall, 1.6 million pounds of herbicides were applied to Kansas wheat acres in 1998. No comparable figure is available for 1991. The most frequently used herbicide in both 1991 and 1998, was 2,4-D. Nineteen percent of the wheat acres received an application of 2,4-D in 1998, compared to seven percent in 1991. The average application rate for the season was 0.62 pound per acre, which is a 0.37 pound per acre increase from 1991. A total of 1.2 million pounds of 2,4-D were applied to Kansas wheat acres in 1998. Only 0.2 million pounds were applied in 1991. Fifty-four percent of the herbicide applications were made by custom applicators. The most prevalent application method was foliar or direct spraying, which also accounted for 54 percent of the herbicide treatments.

## FIELD CHARACTERISTICS

WHEAT: SEEDING RATE BY REGION, 1998				
REGION	AVERAGE	MINIMUM	MAXIMUM	AVERAGE PLANTING DATE
----- POUNDS PER ACRE -----				
REGION 1	61	30	120	9-22-97
REGION 2	69	45	180	10-1-97
REGION 3	91	60	150	10-10-97
STATE	73	30	180	10-1-97

WHEAT: SOURCE OF SEED, BY REGION, 1998			
REGION	PURCHASED	HOMEGROWN OR TRADED	BOTH
REGION 1	31	65	4
REGION 2	26	69	5
REGION 3	45	53	2
STATE	33	63	4

WHEAT: SEED VARIETY SELECTION, BY REGION, 1998					
REGION	BASED ON				
	INCREASED YIELD	ENHANCED PROTEIN CONTENT	DISEASE RESISTANCE	DROUGHT RESISTANCE	OTHER
----- PERCENT -----					
REGION 1	67	1/	9	8	14
REGION 2	67	1/	7	1/	23
REGION 3	78		1/	1/	16
STATE	70	1/	7	3	19

1/ Insufficient data to publish.



## FIELD CHARACTERISTICS

WHEAT: SEED TREATED WITH FUNGICIDE OR INSECTICIDE, 1998				
REGION	SEED PRE-TREATED	PRE-TREATMENT PRODUCT		
		VITAVAX	GRANOX	MISC/UNK
----- PERCENT -----				
REGION 1	9		<u>1</u> /	<u>1</u> /
REGION 2	40	72	6	22
REGION 3	46	67	13	20
STATE	33	64	11	25

1/ Insufficient data to publish.

WHEAT: WHEAT PASTURED, BY REGION, 1998		
REGION	GRAZED BY CATTLE	NOT GRAZED
----- PERCENT -----		
REGION 1	8	92
REGION 2	12	88
REGION 3	10	90
STATE	10	90

WHEAT: SOIL CONSERVATION STRUCTURES OR PRACTICES, BY REGION, 1998							
REGION	GRASS WATERWAY	LEVEES	TERRACES	CONTOUR FARMING	STRIP CROPPING	UNDER GROUND TILE	OTHER
----- PERCENT -----							
REGION 1	1/		32	38	1/	1/	1/
REGION 2	31	1/	47	38	14	1/	4
REGION 3	55		67	40	1/	6	
STATE	30	1/	49	39	8	2	2

1/ Insufficient data to publish.

WHEAT: SPECIAL CLASSIFICATIONS, BY REGION, 1998				
REGION	CLASSIFIED HIGHLY ERODIBLE FIELD BY NRCS	CLASSIFIED WET- LAND FIELD BY NRCS	PLANNING CONSERVATION PROGRAM	COST SHARING ASSIST.
----- PERCENT -----				
REGION 1	37	1/	1/	
REGION 2	27	1/	1/	1/
REGION 3	37	1/	1/	1/
STATE	32	2	1/	1/

1/ Insufficient data to publish.

## FERTILIZER USAGE BY TYPE OF FERTILIZER

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
TYPE OF FERTILIZER	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (Mill. Lbs) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,180.0					
NITROGEN		80	1.3	41	51	180.8
PHOSPHATE		44	1.0	24	24	44.4
POTASH		<u>3/</u>				
REGION 2	5,460.0					
NITROGEN		98	1.7	37	59	331.3
PHOSPHATE		90	1.0	31	31	151.3
POTASH		11	1.0	16	16	9.8
REGION 3	1,060.0					
NITROGEN		100	2.0	41	76	84.6
PHOSPHATE		96	1.1	48	52	52.6
POTASH		59	1.1	56	61	38.5
STATE	10,700.0					
NITROGEN		92	1.5	39	60	596.7
PHOSPHATE		74	1.0	30	31	248.3
POTASH		13	1.0	34	36	50.7

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.

## NITROGEN USAGE BY APPLICATION METHOD

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
APPLICATION METHOD	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,180.0					
BRDCST W/O INCORP		15	1.2	31	38	24.4
BRDCST W/ INCORP		11	1.3	49	62	29.3
BROADCAST AIR						
IN FURROW		4	1.2	9	11	1.7
INJECT/KNIFED		46	1.3	46	62	119.6
BANDED		<u>3/</u>				
FOLIAR/DIRECT		<u>3/</u>				
REGION 2	5,460.0					
BRDCST W/O INCORP		16	2.0	25	50	43.1
BRDCST W/ INCORP		21	1.7	44	73	84.3
BROADCAST AIR		<u>3/</u>				
IN FURROW		14	1.5	8	12	9.7
INJECT/KNIFED		30	1.5	65	100	165.2
BANDED		6	1.5	8	13	4.3
FOLIAR/DIRECT		11	1.6	27	42	24.5
REGION 3	1,060.0					
BRDCST W/O INCORP		47	1.6	59	95	47.2
BRDCST W/ INCORP		28	1.7	35	59	17.6
BROADCAST AIR						
IN FURROW		29	1.5	14	21	6.4
INJECT/KNIFED		6	1.5	42	64	3.9
BANDED		4	1.5	42	63	2.8
FOLIAR/DIRECT		9	1.5	48	71	6.7
STATE	10,700.0					
BRDCST W/O INCORP		18	1.5	39	58	114.7
BRDCST W/ INCORP		18	1.6	42	70	131.3
BROADCAST AIR		<u>3/</u>				
IN FURROW		11	1.4	11	15	17.8
INJECT/KNIFED		34	1.5	55	80	288.7
BANDED		4	1.2	15	18	7.4
FOLIAR/DIRECT		8	1.5	31	45	36.7

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.

## NITROGEN USAGE BY TIMING OF APPLICATION

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
TIMING OF APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,180.0					
BEFORE SEEDING		64	1.3	46	60	161.3
AT SEEDING		5	1.2	13	17	3.2
AFTER SEEDING		12	1.2	26	32	16.2
REGION 2	5,460.0					
BEFORE SEEDING		57	1.7	50	86	267.2
AT SEEDING		22	1.6	9	14	16.8
AFTER SEEDING		17	1.6	31	49	46.3
REGION 3	1,060.0					
BEFORE SEEDING		27	2.0	35	69	20.1
AT SEEDING		29	1.9	19	36	10.8
AFTER SEEDING		43	1.9	59	115	52.9
STATE	10,700.0					
BEFORE SEEDING		57	1.6	47	73	448.5
AT SEEDING		16	1.4	13	18	30.7
AFTER SEEDING		18	1.4	43	60	115.4

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding.

## NITROGEN USAGE BY STANDARD SOIL TEST

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
SOIL TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/ 2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,180.0					
WITH SOIL TEST		31	1.4	41	58	76.3
NO SOIL TEST		49	1.2	41	51	104.5
REGION 2	5,460.0					
WITH SOIL TEST		24	1.5	40	58	77.7
NO SOIL TEST		74	1.7	37	63	253.6
REGION 3	1,060.0					
WITH SOIL TEST		5	2.0	32	65	3.6
NO SOIL TEST		95	1.9	42	81	80.9
STATE	10,700.0					
WITH SOIL TEST		25	1.4	40	58	157.7
NO SOIL TEST		67	1.6	39	61	439.0

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding.

## NITROGEN USAGE BY PLANT TISSUE TEST

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
PLANT TISSUE TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/ 2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,180.0					
WITH PLANT TEST		<u>3/</u>				
NO PLANT TEST		80	1.3	41	54	179.6
REGION 2	5,460.0					
WITH PLANT TEST		7	1.1	71	74	30.8
NO PLANT TEST		91	1.7	36	60	300.5
REGION 3	1,060.0					
WITH PLANT TEST						
NO PLANT TEST		100	1.9	41	80	84.6
STATE	10,700.0					
WITH PLANT TEST		4	1.1	72	78	32.0
NO PLANT TEST		88	1.6	39	60	564.7

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding.

3/ Insufficient data to publish.

## NITROGEN USAGE BY MANURE APPLICATION

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
MANURE APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,180.0					
WITH MANURE		<u>3/</u>				
WITHOUT MANURE		59	1.2	40	47	117.6
REGION 2	5,460.0					
WITH MANURE		4	1.9	50	97	23.4
WITHOUT MANURE		94	1.6	37	60	307.9
REGION 3	1,060.0					
WITH MANURE		2	1.6	48	76	1.8
WITHOUT MANURE		98	2.0	41	80	82.8
STATE	10,700.0					
WITH MANURE		11	1.4	55	76	88.4
WITHOUT MANURE		81	1.5	39	58	508.3

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding.

3/ Insufficient data to publish.

## NITROGEN USAGE BY IRRIGATION METHOD

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
METHOD OF IRRIGATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,180.0					
IRRIGATED		8	1.4	77	106	33.8
NON-IRRIGATED		73	1.3	36	48	147.0
REGION 2	5,460.0					
IRRIGATED		<u>3/</u>				
NON-IRRIGATED		92	1.6	37	60	298.3
REGION 3	1,060.0					
IRRIGATED						
NON-IRRIGATED		100	1.9	41	80	84.6
STATE	10,700.0					
IRRIGATED		7	1.7	57	96	66.9
NON-IRRIGATED		86	1.5	38	58	529.8

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding.

3/ Insufficient data to publish.

## PHOSPHATE USAGE BY APPLICATION METHOD

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
APPLICATION METHOD	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,180.0					
BRDCST W/O INCORP		8	1.0	22	22	7.2
BRDCST W/ INCORP		<u>3/</u>				
BROADCAST AIR						
IN FURROW		10	1.0	27	27	11.0
INJECT/KNIFED		22	1.0	23	23	21.8
BANDED		<u>3/</u>				
FOLIAR/DIRECT						
REGION 2	5,460.0					
BRDCST W/O INCORP		19	1.0	39	39	39.7
BRDCST W/ INCORP		27	1.1	29	35	52.2
BROADCAST AIR		<u>3/</u>				
IN FURROW		22	1.0	24	24	29.7
INJECT/KNIFED		4	1.0	31	31	7.1
BANDED		12	1.0	27	27	18.0
FOLIAR/DIRECT		<u>3/</u>				
REGION 3	1,060.0					
BRDCST W/O INCORP		7	1.1	43	51	4.1
BRDCST W/ INCORP		41	1.0	66	66	28.7
BROADCAST AIR						
IN FURROW		42	1.0	39	39	17.3
INJECT/KNIFED		<u>3/</u>				
BANDED		<u>3/</u>				
FOLIAR/DIRECT						
STATE	10,700.0					
BRDCST W/O INCORP		14	1.0	35	35	51.0
BRDCST W/ INCORP		20	1.1	39	40	84.7
BROADCAST AIR		<u>3/</u>				
IN FURROW		20	1.0	27	27	58.0
INJECT/KNIFED		12	1.0	24	24	30.5
BANDED		7	1.0	27	27	19.4
FOLIAR/DIRECT		<u>3/</u>				

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding.

3/ Insufficient data to publish.

## PHOSPHATE USAGE BY TIMING OF APPLICATION

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
TIMING OF APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,180.0					
BEFORE SEEDING		28	1.0	24	24	27.6
AT SEEDING		16	1.0	23	23	15.9
AFTER SEEDING		<u>3/</u>				
REGION 2	5,460.0					
BEFORE SEEDING		44	1.0	36	36	86.3
AT SEEDING		36	1.0	26	26	52.1
AFTER SEEDING		7	1.0	25	25	10.1
REGION 3	1,060.0					
BEFORE SEEDING		45	1.0	66	66	31.4
AT SEEDING		45	1.0	42	42	19.8
AFTER SEEDING		3	1.0	33	33	1.2
STATE	10,700.0					
BEFORE SEEDING		39	1.0	35	35	145.3
AT SEEDING		30	1.0	26	27	87.8
AFTER SEEDING		4	1.0	25	25	12.1

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding.  
3/ Insufficient data to publish.



## PHOSPHATE USAGE BY STANDARD SOIL TEST

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
SOIL TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,180.0					
WITH SOIL TEST		19	1.0	23	23	18.4
NO SOIL TEST		25	1.0	25	25	26.0
REGION 2	5,460.0					
WITH SOIL TEST		24	1.1	25	28	36.8
NO SOIL TEST		66	1.0	32	32	114.5
REGION 3	1,060.0					
WITH SOIL TEST		5	1.0	39	39	2.2
NO SOIL TEST		91	1.0	52	52	50.4
STATE	10,700.0					
WITH SOIL TEST		21	1.1	23	26	57.4
NO SOIL TEST		54	1.0	33	33	190.9

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding.

## PHOSPHATE USAGE BY PLANT TISSUE TEST

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
PLANT TISSUE TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,180.0					
WITH PLANT TEST		<u>3/</u>				
NO PLANT TEST		44	1.0	24	24	43.8
REGION 2	5,460.0					
WITH PLANT TEST		7	1.3	21	27	10.6
NO PLANT TEST		83	1.0	31	31	140.8
REGION 3	1,060.0					
WITH PLANT TEST						
NO PLANT TEST		96	1.0	52	52	52.6
STATE	10,700.0					
WITH PLANT TEST		4	1.3	20	26	11.1
NO PLANT TEST		71	1.0	31	31	237.2

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding.

3/ Insufficient data to publish.

## PHOSPHATE USAGE BY MANURE APPLICATION

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
MANURE APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,180.0					
WITH MANURE		<u>3/</u>				
WITHOUT MANURE		43	1.0	24	24	42.4
REGION 2	5,460.0					
WITH MANURE		4	1.0	36	36	7.7
WITHOUT MANURE		86	1.0	31	31	143.6
REGION 3	1,060.0					
WITH MANURE		<u>3/</u>				
WITHOUT MANURE		95	1.0	52	52	51.8
STATE	10,700.0					
WITH MANURE		3	1.0	32	32	10.5
WITHOUT MANURE		72	1.0	31	31	237.8

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding.  
3/ Insufficient data to publish.

## PHOSPHATE USAGE BY IRRIGATION METHOD

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
METHOD OF IRRIGATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,180.0					
IRRIGATED		<u>3/</u>				
NON-IRRIGATED		41	1.0	23	23	39.8
REGION 2	5,460.0					
IRRIGATED		<u>3/</u>				
NON-IRRIGATED		83	1.1	27	31	139.1
REGION 3	1,060.0					
IRRIGATED						
NON-IRRIGATED		96	1.0	52	52	52.6
STATE	10,700.0					
IRRIGATED		5	1.0	32	32	16.8
NON-IRRIGATED		70	1.0	30	31	231.5

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding.  
3/ Insufficient data to publish.

## POTASH USAGE BY APPLICATION METHOD

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
APPLICATION METHOD	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <sup>2/</sup>
	ASB ACRES (000)	PCT TREATED <sup>1/</sup>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,180.0	<u>3/</u>				
REGION 2	5,460.0					
BRDCST W/O INCORP		<u>3/</u>				
BRDCST W/ INCORP		<u>3/</u>				
IN FURROW		<u>3/</u>				
INJECT/KNIFED		<u>3/</u>				
REGION 3	1,060.0					
BRDCST W/O INCORP		3	1.3	31	40	1.4
BRDCST W/ INCORP		50	1.1	60	66	35.1
IN FURROW		<u>3/</u>				
INJECT/KNIFED		<u>3/</u>				
STATE	10,700.0					
BRDCST W/O INCORP		6	1.0	11	11	7.4
BRDCST W/ INCORP		5	1.3	53	67	38.7
IN FURROW		<u>3/</u>				
INJECT/KNIFED		<u>3/</u>				

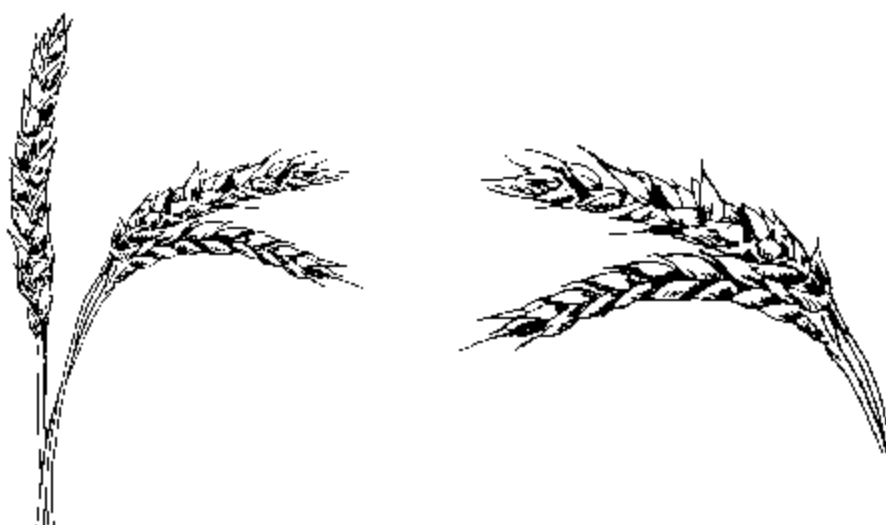
<sup>1/</sup> Refers to acres receiving one or more applications of a specific fertilizer ingredient. <sup>2/</sup> May not add due to rounding.

3/ Insufficient data to publish.

## POTASH USAGE BY TIMING OF APPLICATION

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
TIMING OF APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) 2/
	ASB ACRES (000)	PCT TREATED 1/ 2/	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	4,180.0	3/				
REGION 2	5,460.0					
BEFORE SEEDING		13	1.0	11	11	7.6
AT SEEDING		3/				
AFTER SEEDING						
REGION 3	1,060.0					
BEFORE SEEDING		53	1.1	61	66	37.8
AT SEEDING		3/				
AFTER SEEDING		3/				
STATE	10,700.0					
BEFORE SEEDING		13	1.0	36	36	47.9
AT SEEDING		3/				
AFTER SEEDING		3/				

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding.  
3/ Insufficient data to publish.



## POTASH USAGE BY STANDARD SOIL TEST

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
SOIL TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) 2/
	ASB ACRES (000)	PCT TREATED 1/ 2/	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	4,180.0	3/				
REGION 2	5,460.0					
WITH SOIL TEST		3/				
NO SOIL TEST		13	1.0	10	10	7.4
REGION 3	1,060.0					
WITH SOIL TEST		3/				
NO SOIL TEST		52	1.1	58	65	36.2
STATE	10,700.0					
WITH SOIL TEST		3	1.0	18	18	5.1
NO SOIL TEST		12	1.0	37	37	45.6

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding.

3/ Insufficient data to publish.

## POTASH USAGE BY PLANT TISSUE TEST

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
PLANT TISSUE TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) 2/
	ASB ACRES (000)	PCT TREATED 1/ 2/	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	4,180.0	3/				
REGION 2	5,460.0					
WITH PLANT TEST		3/				
NO PLANT TEST		16	1.0	11	11	9.8
REGION 3	1,060.0					
WITH PLANT TEST		3/				
NO PLANT TEST		52	1.2	56	68	38.5
STATE	10,700.0					
WITH PLANT TEST		3/				
NO PLANT TEST		14	1.0	34	34	50.7

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding.

3/ Insufficient data to publish.

## POTASH USAGE BY MANURE APPLICATION

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
MANURE APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,180.0	<u>3/</u>				
REGION 2	5,460.0					
WITH MANURE						
WITHOUT MANURE		16	1.0	11	11	9.8
REGION 3	1,060.0					
WITH MANURE		<u>3/</u>				
WITHOUT MANURE		52	1.2	56	68	38.4
STATE	10,700.0					
WITH MANURE		<u>3/</u>				
WITHOUT MANURE		14	1.0	34	34	50.6

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding.  
3/ Insufficient data to publish.

## POTASH USAGE BY IRRIGATION METHOD

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
METHOD OF IRRIGATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,180.0	<u>3/</u>				
REGION 2	5,460.0					
IRRIGATED						
NON-IRRIGATED		16	1.0	11	11	9.8
REGION 3	1,060.0					
IRRIGATED						
NON-IRRIGATED		52	1.2	56	68	38.5
STATE	10,700.0					
IRRIGATED		<u>3/</u>				
NON-IRRIGATED		14	1.0	35	35	50.2

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding.  
3/ Insufficient data to publish.

## GENERAL FERTILIZER PRACTICES

WHEAT: SPECIAL PRACTICES BY REGION, 1998						
Percent Usage						
REGION	PERFORMED STANDARD SOIL TESTS	PERFORMED PLANT TISSUE TESTS	PERFORMED A NITROGEN SOIL TEST	AMOUNT APPLIED COMPARED TO RECOMMENDATIONS		
				MORE THAN	LESS THAN	SAME AS
		PERCENT		----- PERCENT -----		
REGION 1	31	<u>1</u> /	29	9	30	61
REGION 2	19	4	15	16	32	52
REGION 3	8		<u>1</u> /			
STATE	19	2	16	11	28	61

1/ Insufficient data to publish

WHEAT: MANURE USAGE BY REGION, 1998						
REGION	PERCENT APPLYING MANURE	PERCENT OF ACRES WITH MANURE APPLIED	AVG. TONS APPLIED PER ACRE	HOW APPLIED		
				DRY BROADCAST WITHOUT INCORP.	DRY BROADCAST WITH INCORP.	INJECTED/ KNIVED IN
				----- PERCENT -----		
REGION 1	<u>1</u> /					
REGION 2	5	2	7	71	<u>1</u> /	
REGION 3	8	5	3	<u>1</u> /	<u>1</u> /	<u>1</u> /
STATE	6	2	4	59	35	<u>1</u> /

1/ Insufficient data to publish

WHEAT: SOURCE OF MANURE BY REGION, 1998				
REGION	BEEF	DAIRY	HOGS	POULTRY
	----- PERCENT -----			
REGION 1	<u>1</u> /			<u>1</u> /
REGION 2	71	<u>1</u> /		
REGION 3	<u>1</u> /	<u>1</u> /	<u>1</u> /	
STATE	59	<u>1</u> /	<u>1</u> /	<u>1</u> /

1/ Insufficient data to publish

WHEAT: MANURE OBTAINED BY REGION, 1998			
REGION	PRODUCED ON OPERATION	PURCHASED	OBTAINED OFF OPERATION (NO COST)
	----- PERCENT -----		
REGION 1	<u>1</u> /	<u>1</u> /	<u>1</u> /
REGION 2	86		<u>1</u> /
REGION 3	100		
STATE	82	<u>1</u> /	<u>1</u> /

1/ Insufficient data to publish.

## GENERAL FERTILIZER PRACTICES

<b>WHEAT: LIME APPLICATION BY REGION, 1998</b> Percent Usage			
REGION	LIME APPLIED	AVERAGE YEARS BETWEEN APPLICATIONS	AVERAGE APPLICATION RATES
	PERCENT		TONS PER ACRE
REGION 1			
REGION 2	16	8	2.2
REGION 3	40	11	2.8
STATE	19	10	2.6

<b>WHEAT: SULFUR APPLICATIONS BY REGION, 1998</b> Percent Usage		
REGION	SULFUR APPLIED	RATE PER APPLICATION
	PERCENT	POUNDS PER ACRE
REGION 1	13	<u>1</u> /
REGION 2	9	5
REGION 3	4	<u>1</u> /
STATE	9	6

1/ Insufficient data to publish.

<b>WHEAT: MICRO NUTRIENTS, BY REGION, 1998</b> Percent Usage			
REGION	MICRO NUTRIENTS APPLIED	THOSE WHO APPLIED MICRO NUTRIENTS APPLIED THE FOLLOWING PRODUCTS	
		ZINC	OTHER
		----- PERCENT -----	
REGION 1	13	83	17
REGION 2	4	<u>1</u> /	<u>1</u> /
REGION 3	6	<u>1</u> /	<u>1</u> /
STATE	7	79	21

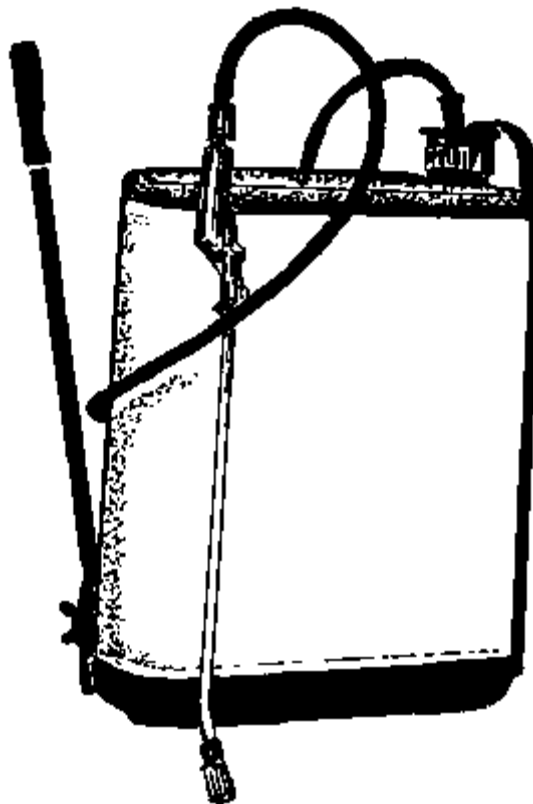
1/ Insufficient data to publish.



## PESTICIDE USAGE BY TYPE OF PESTICIDE

<b>WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND TOTAL POUNDS APPLIED, BY REGION, 1998</b>			
TYPE OF PESTICIDE	PLANTED ACRES		TOTAL APPLIED <u>2/</u> (000) LBS
	ASB ACRES (000)	PCT TREATED <u>1/</u>	
REGION 1	4,180.0		
HERBICIDES		33	585
REGION 2	5,460.0		
HERBICIDES		30	245
REGION 3	1,060.0		
HERBICIDES		52	790
STATE	10,700.0		
HERBICIDES		35	1,620

1/ Refers to acres receiving one or more applications of a specific pesticide ingredient. 2/ May not add due to rounding.



## PESTICIDE USAGE BY ACTIVE INGREDIENT

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
TYPE OF HERBICIDE	PLANTED ACRES		APPLICATION RATES LBS/ACRE			TOTAL APPLIED CROP YEAR (000) LBS <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	4,180.0					
2,4-D		34	1.0	0.33	0.33	464.0
CHLORSULFURON		<u>3/</u>				
DICAMBA		7	1.0	0.10	0.10	28.2
MCPA		<u>3/</u>				
METSULFURON-METHYL		8	1.0	0.003	0.003	1.1
PICLORAM		5	1.0	0.03	0.03	6.6
TRIASULFURON		<u>3/</u>				
REGION 2	5,460.0					
2,4-D		10	1.0	0.38	0.38	204.6
CHLORSULFURON		27	1.0	0.01	0.01	14.9
DICAMBA						
MCPA		<u>3/</u>				
METSULFURON-METHYL		10	1.0	0.003	0.003	1.6
PICLORAM		<u>3/</u>				
TRIASULFURON		2	1.0	0.02	0.02	2.1
REGION 3	1,060.0					
2,4-D		<u>3/</u>				
CHLORSULFURON		19	1.0	0.01	0.01	1.9
DICAMBA		<u>3/</u>				
MCPA						
METSULFURON-METHYL		9	1.0	0.002	0.002	0.2
PICLORAM						
TRIASULFURON		<u>3/</u>				
STATE	10,700.0					
2,4-D		19	1.3	0.47	0.62	1,231.0
CHLORSULFURON		15	1.0	0.01	0.01	19.0
DICAMBA		3	1.0	0.10	0.10	30.0
MCPA		1	1.0	0.21	0.21	25.0
METSULFURON-METHYL		9	1.0	0.003	0.003	3.0
PICLORAM		2	1.0	0.03	0.03	7.0
TRIASULFURON		3	1.0	0.02	0.02	5.0

1/ Refers to acres receiving one or more applications of specific pesticide ingredient. 2/ May not add due to rounding. 3/ Insufficient reports to publish.

# PESTICIDE USAGE BY TARGET PEST

## BROADLEAVES, ALL

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
TYPE OF PESTICIDE	PLANTED ACRES		APPLICATION RATES LBS/ACRE			TOTAL APPLIED CROP YEAR (000) LBS <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,180.0					
2,4-D		23	1.0	0.35	0.36	350.9
CHLORSULFURON		<u>3/</u>				
DICAMBA		<u>3/</u>				
MCPA		<u>3/</u>				
METSULFURON		7	1.0	0.003	0.003	1.0
PICLORAM		6	1.0	0.03	0.03	7.0
TRIASULFURON		<u>3/</u>				
REGION 2	5,460.0					
2,4-D		9	1.0	0.38	0.38	193.3
CHLORSULFURON		18	1.0	0.01	0.01	11.7
DICAMBA		<u>3/</u>				
MCPA		<u>3/</u>				
METSULFURON		10	1.0	0.003	0.003	1.5
PICLORAM		<u>3/</u>				
TRIASULFURON		2	1.0	0.02	0.02	1.5
REGION 3	1,060.0					
2,4-D		<u>3/</u>				
CHLORSULFURON		15	1.0	0.01	0.01	1.7
DICAMBA		<u>3/</u>				
MCPA		<u>3/</u>				
METSULFURON		10	1.0	0.002	0.002	0.2
PICLORAM		<u>3/</u>				
TRIASULFURON		<u>3/</u>				
STATE	10,700.0					
2,4-D		16	1.0	0.50	0.50	869.3
CHLORSULFURON		13	1.0	0.01	0.01	15.6
DICAMBA		2	1.0	0.09	0.09	16.1
MCPA		1	1.0	0.21	0.21	24.7
METSULFURON		9	1.0	0.003	0.003	2.7
PICLORAM		2	1.0	0.03	0.03	7.4
TRIASULFURON		3	1.0	0.01	0.01	4.2

1/ Refers to acres receiving one or more applications of a specific pesticide ingredient. 2/ May not add due to rounding.

3/ Insufficient data to publish.

## HERBICIDE USAGE BY APPLICATION METHOD

WHEAT: TOTAL ACREAGE AND PERCENT OF ACRES TREATED BY REGION, 1998		
APPLICATION METHOD	ACRES	
	ASB ACRES (000)	PCT ACRES TREATED <u>1/</u>
REGION 1	4,180.0	
BRDCST W/O INCORP		14
BRDCST W/ INCORP		
BROADCAST AIR		<u>2/</u>
IN FURROW		<u>2/</u>
BANDED		
FOLIAR/DIRECT		17
SPOT TREAT		<u>2/</u>
REGION 2	5,460.0	
BRDCST W/O INCORP		11
BRDCST W/ INCORP		<u>2/</u>
BROADCAST AIR		<u>2/</u>
IN FURROW		<u>2/</u>
BANDED		<u>2/</u>
FOLIAR/DIRECT		16
SPOT TREAT		
REGION 3	1,060.0	
BRDCST W/O INCORP		35
BRDCST W/ INCORP		<u>2/</u>
BROADCAST AIR		
IN FURROW		<u>2/</u>
BANDED		<u>2/</u>
FOLIAR/DIRECT		44
SPOT TREAT		
STATE	10,700.0	
BRDCST W/O INCORP		15
BRDCST W/ INCORP		<u>2/</u>
BROADCAST AIR		1
IN FURROW		<u>2/</u>
BANDED		<u>2/</u>
FOLIAR/DIRECT		19
SPOT TREAT		<u>2/</u>

1/ Refers to acres receiving one or more applications of a specific herbicide ingredient. 2/ Insufficient data to publish.

## HERBICIDE USAGE BY TIMING OF APPLICATION

WHEAT: TOTAL ACREAGE AND PERCENT OF ACRES TREATED BY REGION, 1998		
TIMING OF APPLICATION <u>1/</u>	ACRES	
	ASB ACRES (000)	PCT ACRES TREATED <u>2/</u>
REGION 1	4,180.0	
BEFORE PLANTING		8
AT PLANTING		
AFTER PLANTING		25
REGION 2	5,460.0	
BEFORE PLANTING		<u>3/</u>
AT PLANTING		<u>3/</u>
AFTER PLANTING		27
REGION 3	1,060.0	
BEFORE PLANTING		<u>3/</u>
AT PLANTING		
AFTER PLANTING		19
STATE	10,700.0	
BEFORE PLANTING		8
AT PLANTING		<u>3/</u>
AFTER PLANTING		25

1/ At planting is defined as 3 days before planting to 3 days after planting. 2/ Refers to acres receiving one or more applications of a specific herbicide ingredient. 3/ Insufficient data to publish.

## HERBICIDE USAGE BY APPLICATOR

WHEAT: TOTAL ACREAGE AND PERCENT OF ACRES TREATED BY REGION, 1998		
APPLICATION MADE BY	ACRES	
	ASB ACRES (000)	PCT ACRES TREATED <u>1/</u>
REGION 1	4,180.0	
OPERATOR		19
CUSTOM		14
EMPLOYEE		
REGION 2	5,460.0	
OPERATOR		6
CUSTOM		23
EMPLOYEE		<u>2/</u>
REGION 3	1,060.0	
OPERATOR		<u>2/</u>
CUSTOM		18
EMPLOYEE		
STATE	10,700.0	
OPERATOR		14
CUSTOM		19
EMPLOYEE		<u>2/</u>

1/ Refers to acres receiving one or more applications of a specific herbicide ingredient. 2/ Insufficient data to publish.

## RECORDS USE

WHEAT: USE OF RECORDS TO PROVIDE SURVEY DATA BY REGION, 1998		
REGION	FERTILIZER	PESTICIDE
	----- PERCENT -----	
REGION 1	50	64
REGION 2	42	31
REGION 3	47	52
STATE	45	43

## PEST MANAGEMENT PRACTICES

WHEAT: FIELD SCOUTING FOR PESTS BY REGION, 1998					
PEST BY REGION	SCOUTED PERCENT	BY			
		OPERATOR	EMPLOYEE	DEALER	CONSULTANT
----- PERCENT -----					
FOR WEEDS					
REGION 1	85	88		1/	11
REGION 2	73	96		1/	1/
REGION 3	70	97	1/	1/	
STATE	75	94	1/	1/	4
FOR INSECTS					
REGION 1	71	83		1/	13
REGION 2	63	96		1/	1/
REGION 3	57	96	1/	1/	
STATE	63	92	1/	1/	5
FOR DISEASES					
REGION 1	69				
REGION 2	65				
REGION 3	60				
STATE	65				

1/ Insufficient data to publish.

WHEAT: SCOUTING TIME, BY REGION, 1998	
REGION	AVERAGE BY OPERATOR AND EMPLOYEE
	MINUTES/ACRE
REGION 1	1.7
REGION 2	1.5
REGION 3	3.1
STATE	1.8

WHEAT: RECORDS OF SCOUTING, BY REGION, 1998	
REGION	REGION
	KEPT RECORDS
	----- PERCENT -----
REGION 1	24
REGION 2	10
REGION 3	10
STATE	14

## PEST MANAGEMENT PRACTICES

WHEAT: APPLIED PRE-EMERGENCE HERBICIDES BY REGION, 1998					
REGION	APPLIED PERCENT	BASED ON			
		ROUTINE TREATMENT	FIELD MAPPING	CHEMICAL DEALER RECOMMENDATION	CROP CONSULTANT
		----- PERCENT -----			
REGION 1	8	83	<u>1</u> /		
REGION 2	25	84	19	19	<u>1</u> /
REGION 3	9	100	<u>1</u> /		
STATE	16	87	22	13	<u>1</u> /

1/ Insufficient data to publish.

WHEAT: APPLIED POST-EMERGENCE HERBICIDES BY REGION, 1998					
REGION	APPLIED PERCENT	BASED ON			
		ROUTINE TREATMENT	TYPE &/OR DENSITY OF WEEDS	DEALER	CROP CONSULTANT
		----- PERCENT -----			
REGION 1	21	63	63	<u>1</u> /	<u>1</u> /
REGION 2	20	68	32	<u>1</u> /	<u>1</u> /
REGION 3	14	67	75	58	<u>1</u> /
STATE	18	66	51	25	<u>1</u> /

1/ Insufficient data to publish.





# PEST MANAGEMENT PRACTICES

WHEAT: PEST CONTROL PRACTICES BY REGION, 1998				
METHOD BY REGION	PERCENT OF PRODUCERS	PRODUCERS USING PRACTICE TO CONTROL: <u>1/</u>		
		WEEDS ONLY	INSECTS ONLY	BOTH
----- PERCENT -----				
ADJUST PLANTING OR HARVESTING DATE				
REGION 1	28	38	38	24
REGION 2	16	60	35	5
REGION 3	31	30	59	11
STATE	24	41	46	13
ALTERNATE PESTICIDES				
REGION 1	13	50	25	25
REGION 2	5	100		
REGION 3	14	67		33
STATE	10	69	8	23
CROP ROTATION PAST 3 YEARS				
REGION 1	37	81		19
REGION 2	39	73		27
REGION 3	73	55	3	42
STATE	49	67	1	32
ADJUST ROW SPACING OR PLANT DENSITY				
REGION 1	9	60	20	20
REGION 2	<u>2/</u>			
REGION 3	6	60		40
STATE	5	69	8	23
TILLING, MOWING, BURNING, OR CHOPPING FIELD EDGES				
REGION 1	40	72	4	24
REGION 2	38	64		36
REGION 3	30	61	12	27
STATE	36	66	4	30
WATER MANAGEMENT PRACTICES				
REGION 1	<u>2/</u>	<u>2/</u>		<u>2/</u>
REGION 2	<u>2/</u>	<u>2/</u>		<u>2/</u>
REGION 3	<u>2/</u>	<u>2/</u>		<u>2/</u>
STATE	2	75		25
CLEANING TILLAGE AND HARVESTING EQUIPMENT				
REGION 1	50	86		14
REGION 2	40	70		30
REGION 3	28	83	4	13
STATE	40	78	1	21

1/ Represents breakout of producers who performed practices by whether they performed the practice for weeds only, insects only, or both. 2/ Insufficient data to publish.

## PEST MANAGEMENT PRACTICES

<b>WHEAT: SPECIAL PRACTICES BY REGION, 1998</b>				
REGION	BIOLOGICAL SOIL ANALYSIS TO DETECT PESTS	CONSIDER BENEFICIAL INSECTS IN SELECTING PESTICIDES	PEST RESISTANT SEED USED	USE SEED TREATMENT FOR DISEASE CONTROL
----- PERCENT -----				
REGION 1		1/	17	1/
REGION 2	1/	5	24	25
REGION 3		1/	30	33
STATE	1/	4	24	22

1/ Insufficient data to publish.

<b>WHEAT: SPECIAL PRACTICES, BY REGION, 1998</b>		
REGION	RELEASE BENEFICIAL INSECTS	ADJUST GRAZING DATES
----- PERCENT -----		
REGION 1	0	1/
REGION 2	0	1/
REGION 3	0	1/
STATE	0	2

1/ Insufficient data to publish.

WHEAT: INFORMATION SOURCES BY REGION, 1998					
REGION	UNIVERSITY RESEARCH AND EXTENSION	FARM SUPPLY	COMMERCIAL SCOUTING	CROP CONSULTANT	OTHER GROWERS
----- PERCENT -----					
REGION 1	9	38	1/	17	13
REGION 2	12	54	1/	4	4
REGION 3	14	48		1/	13
STATE	12	48	1/	7	9
REGION	PRODUCER ASSOCIATION, TV, RADIO, NEWSPAPER		OTHER	NONE	
----- PERCENT -----					
REGION 1	1/		1/		13
REGION 2	1/		4		19
REGION 3	1/		1/		16
STATE	3		4		16

1/ Insufficient data to publish.

<b>WHEAT: PESTICIDE USE TRAINING BY REGION, 1998</b>		
REGION	OPERATOR RECEIVED PEST IDENTIFICATION & MANAGEMENT TRAINING	OPERATOR CERTIFIED FOR APPLYING "RESTRICTED USE" PESTICIDES
----- PERCENT -----		
REGION 1	32	65
REGION 2	9	41
REGION 3	11	66
STATE	16	55

## PEST MANAGEMENT PRACTICES

WHEAT: WEED HERBICIDE RESISTANCE BY REGION, 1998				
REGION	AWARE OF HERBICIDE RESISTANCE	HERBICIDE		
		ATRAZINE	ROUND UP	MISC/UNK
----- PERCENT -----				
REGION 1	13	29	14	57
REGION 2	9	62		38
REGION 3	2	<u>1</u> /		
STATE	8	50	6	44

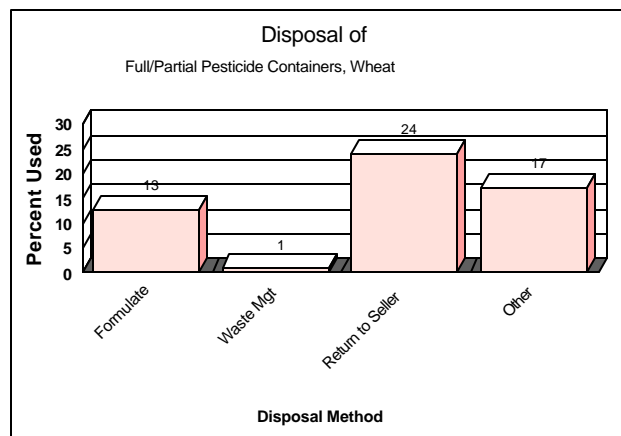
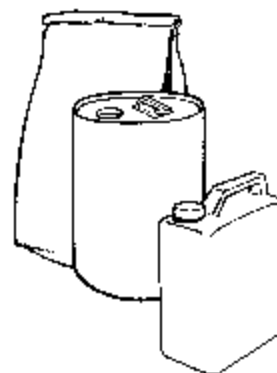
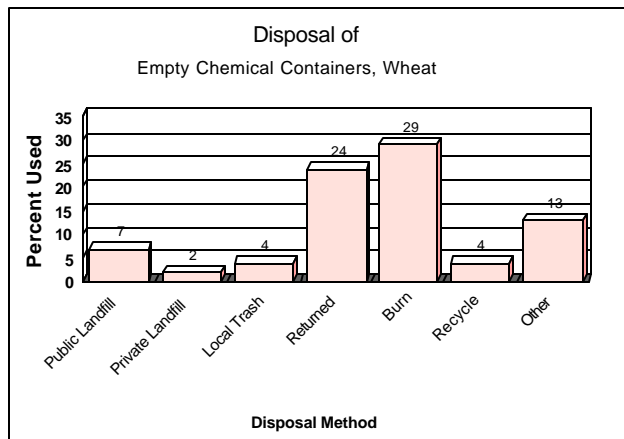
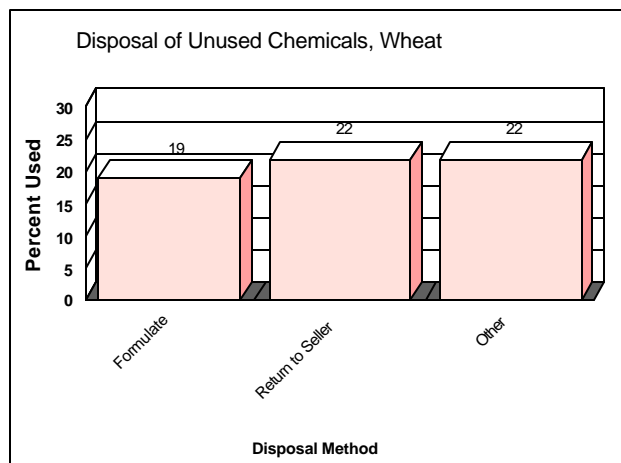
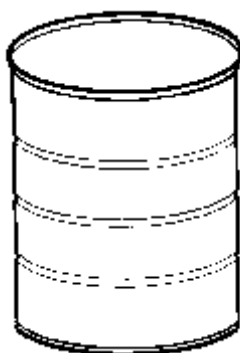
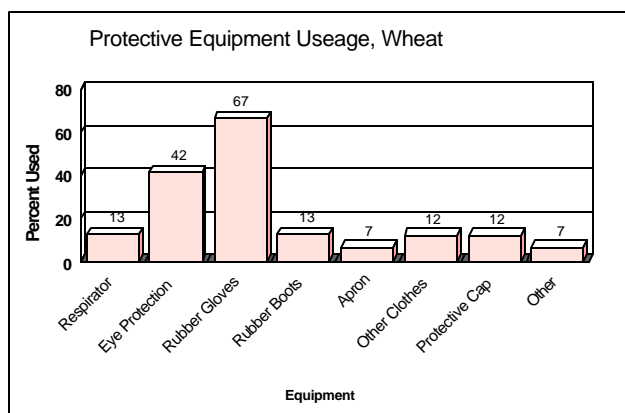
1/ Insufficient data to publish.

WHEAT: HERBICIDE RESISTANT WEEDS, 1998				
REGION	PIGWEEED	BINDWEED	KOCHIA	OTHER
----- PERCENT -----				
REGION 1	13	38	50	13
REGION 2		67	33	
REGION 3	<u>1/</u>			
STATE	13	47	40	7

1/ Insufficient data to publish.



# WHEAT: HANDLING OF CHEMICALS



## **SORGHUM HIGHLIGHTS**

In 1998, 3.5 million acres were planted to sorghum in Kansas. Grain yields averaged a record high 80.0 bushels per acre, from 3.3 million acres harvested, for a total sorghum production of 264.0 million bushels.

Nitrogen was applied to 90 percent of the sorghum crop in Kansas in 1998, equal to findings of a similar survey conducted in 1991. The most common method of application was injection before planting. The application rate for nitrogen for the season was 68 pounds per acre, down slightly from 70 pounds per acre in 1991.

Kansas sorghum producers applied phosphate to 54 percent of their sorghum acres in 1998. This is an increase from 47 percent in 1991. The method used most often to apply phosphate was either broadcasting with incorporation or in seed row at planting. The average application rate was 29 pounds per acre, compared to 34 pounds in 1991.

Potash was applied to nine percent of the Kansas sorghum grown in 1998, down from 13 percent in 1991. Twenty-seven pounds per acre was the average application rate for potash. The most common method of application for potash was broadcast with incorporation before seeding in the spring.

Ninety-one percent of all Kansas sorghum acres were treated with some sort of herbicide, up from 80 percent in 1991. In 1998, 7.7 million pounds of herbicides were applied to Kansas sorghum fields. The most common method of applying herbicide was broadcasting without incorporation after seeding. Atrazine was the most commonly used herbicide on sorghum acres in both 1998 and 1991. In 1998, eighty-two percent of the sorghum acres in Kansas received Atrazine applications., compared to 71 percent in 1991. The 1998 application rate for Atrazine was 1.24 for the season, up only 0.13 pound from 1991.

Sorghum producers applied insecticide to eleven percent of their planted acres, up from 9 percent of the acres in 1991. Insecticide was most commonly applied after planting by aerial broadcasting. Chlorpyrifos was the most commonly used insecticide in 1998. Five percent of the state's sorghum acres were treated with Chlorpyrifos, at a rate of 0.44 pound per acre for the season.

# FIELD CHARACTERISTICS

SORGHUM: SEEDING RATE BY REGION, 1998			
REGION	AVERAGE	MINIMUM	MAXIMUM
----- POUNDS PER ACRE -----			
REGION 1	3.2	0.9	7.0
REGION 2	3.8	1.2	7.0
REGION 3	5.2	2.5	10.0
STATE	3.9	0.9	10.0

SORGHUM: PLANTING DATE AND METHOD, 1998				
REGION	AVERAGE PLANTING DATE	PLANTING METHOD		AVERAGE ROW WIDTH
		DRILLED	CONVENTIONAL ROWS	
		----- PERCENT-----		INCHES
REGION 1	5-29-98	18	82	27.7
REGION 2	6-02-98	17	83	27.6
REGION 3	5-20-98	26	74	27.3
STATE	5-30-98	18	82	27.6



## FIELD CHARACTERISTICS

<b>SORGHUM: SOIL CONSERVATION STRUCTURES OR PRACTICES, BY REGION, 1998</b>						
REGION	GRASS WATERWAY	LEVEES	TERRACES	CONTOUR FARMING	STRIP CROPPING	OTHER
----- PERCENT -----						
REGION 1	1/		47	37	1/	
REGION 2	39	1/	52	43	10	1/
REGION 3	51	1/	51	33	1/	1/
STATE	31	1/	51	40	7	2

1/ Insufficient data to publish.

<b>SORGHUM: SPECIAL CLASSIFICATIONS, BY REGION, 1998</b>				
REGION	CLASSIFIED HIGHLY ERODIBLE FIELD BY NRCS	CLASSIFIED WET LAND FIELD BY NRCS	PLANNING CONSER- VATION PRACTICES	COST SHARING ASSISTANCE
----- PERCENT -----				
REGION 1	47	1/	1/	1/
REGION 2	34	1/	1/	1/
REGION 3	21	1/	1/	1/
STATE	36	2	3	1/

1/ Insufficient data to publish.

## FERTILIZER USAGE BY TYPE OF FERTILIZER

<b>SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998</b>						
TYPE OF FERTILIZER	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (Mill. Lbs) 2/
	ASB ACRES (000)	PCT TREATED 1/	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	1,071.0					
NITROGEN		76	1.2	48	61	48.8
PHOSPHATE		44	1.0	24	25	11.4
POTASH		3/				
REGION 2	1,712.0					
NITROGEN		93	1.3	49	66	104.1
PHOSPHATE		53	1.0	28	28	25.1
POTASH		4	1.0	9	9	0.6
REGION 3	717.0					
NITROGEN		98	1.5	57	88	60.7
PHOSPHATE		68	1.0	37	37	18.0
POTASH		31	1.0	37	39	8.1
STATE	3,500.0					
NITROGEN		90	1.3	51	68	213.6
PHOSPHATE		54	1.0	29	29	54.5
POTASH		9	1.0	27	27	8.8

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.

## NITROGEN USAGE BY APPLICATION METHOD

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
APPLICATION METHOD	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	1,071.0					
BRDCST W/O INCORP		17	1.3	35	46	8.2
BRDCST W/ INCORP		6	1.2	52	62	3.9
IN FURROW		14	1.2	17	20	3.0
INJECT/KNIFED		25	1.3	69	86	23.4
BANDED		13	1.2	56	68	9.5
FOLIAR/DIRECT		<u>3/</u>				
REGION 2	1,712.0					
BRDCST W/O INCORP		13	1.3	48	63	14.5
BRDCST W/ INCORP		17	1.3	43	57	16.7
IN FURROW		10	1.2	9	11	2.0
INJECT/KNIFED		38	1.3	74	93	60.8
BANDED		8	1.6	22	35	4.9
FOLIAR/DIRECT		6	1.4	36	50	5.2
REGION 3	717.0					
BRDCST W/O INCORP		4	1.2	25	30	0.8
BRDCST W/ INCORP		36	1.6	38	60	15.6
IN FURROW		16	1.2	21	26	2.9
INJECT/KNIFED		49	1.2	92	113	39.6
BANDED		<u>3/</u>	2.0	10	19	0.2
FOLIAR/DIRECT		<u>3/</u>	1.2	61	74	1.6
STATE	3,500.0					
BRDCST W/O INCORP		12	1.3	42	56	23.5
BRDCST W/ INCORP		17	1.4	42	61	36.1
IN FURROW		12	1.3	14	19	7.9
INJECT/KNIFED		30	1.3	76	100	123.8
BANDED		8	1.4	35	52	14.6
FOLIAR/DIRECT		4	1.4	39	56	7.7

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.



## NITROGEN USAGE BY TIMING OF APPLICATION

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
TIMING OF APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	1,071.0					
BEFORE SEEDING, FALL		28	1.2	65	81	24.1
BEFORE SEEDING, SPRING		19	1.3	44	56	11.2
AT SEEDING		25	1.2	35	42	11.4
AFTER SEEDING		4	1.2	38	46	2.0
REGION 2	1,712.0					
BEFORE SEEDING, FALL		20	1.2	61	75	26.2
BEFORE SEEDING, SPRING		45	1.3	62	81	62.7
AT SEEDING		21	1.4	19	27	9.7
AFTER SEEDING		7	1.3	39	49	5.5
REGION 3	717.0					
BEFORE SEEDING, FALL		17	1.2	86	107	12.8
BEFORE SEEDING, SPRING		58	1.6	62	102	42.7
AT SEEDING		22	1.2	21	26	3.9
AFTER SEEDING		<u>3/</u>				
STATE	3,500.0					
BEFORE SEEDING, FALL		22	1.3	65	83	63.1
BEFORE SEEDING, SPRING		39	1.4	60	85	116.6
AT SEEDING		22	1.3	25	32	25.1
AFTER SEEDING		5	1.3	38	49	8.8

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.

## NITROGEN USAGE BY STANDARD SOIL TEST

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
SOIL TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) 2/
	ASB ACRES (000)	PCT TREATED 1/ 2/	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	1,071.0					
WITH SOIL TEST		41	1.3	55	72	32.0
NO SOIL TEST		35	1.1	40	45	16.8
REGION 2	1,712.0					
WITH SOIL TEST		13	1.3	43	56	12.7
NO SOIL TEST		80	1.3	51	67	91.4
REGION 3	717.0					
WITH SOIL TEST		17	1.3	53	68	8.4
NO SOIL TEST		80	1.6	58	91	52.3
STATE	3,500.0					
WITH SOIL TEST		23	1.3	51	67	53.1
NO SOIL TEST		66	1.4	51	70	160.5

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

## NITROGEN USAGE BY PLANT TISSUE TEST

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
PLANT TISSUE TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) 2/
	ASB ACRES (000)	PCT TREATED 1/ 2/	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	1,071.0					
WITH PLANT TEST						
NO PLANT TEST		76	1.2	49	60	48.8
REGION 2	1,712.0					
WITH PLANT TEST		3/				
NO PLANT TEST		93	1.3	50	65	102.7
REGION 3	717.0					
WITH PLANT TEST		3/				
NO PLANT TEST		97	1.5	57	87	60.6
STATE	3,500.0					
WITH PLANT TEST		3/				
NO PLANT TEST		88	1.4	51	68	212.1

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.

## NITROGEN USAGE BY MANURE APPLICATION

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
MANURE APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) 2/
	ASB ACRES (000)	PCT TREATED 1/ 2/	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	1,071.0					
WITH MANURE		3/				
WITHOUT MANURE		74	1.2	49	59	46.6
REGION 2	1,712.0					
WITH MANURE		3/				
WITHOUT MANURE		92	1.3	50	65	103.1
REGION 3	717.0					
WITH MANURE		3/				
WITHOUT MANURE		94	1.5	57	86	57.6
STATE	3,500.0					
WITH MANURE		2	1.6	57	92	6.2
WITHOUT MANURE		87	1.4	51	68	207.4

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.

## NITROGEN USAGE BY IRRIGATION METHOD

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
METHOD OF IRRIGATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) 2/
	ASB ACRES (000)	PCT TREATED 1/ 2/	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	1,071.0					
IRRIGATED		7	1.4	73	105	7.5
NON-IRRIGATED		69	1.4	41	56	41.3
REGION 2	1,712.0					
IRRIGATED		3/				
NON-IRRIGATED		93	1.3	50	65	102.7
REGION 3	717.0					
IRRIGATED						
NON-IRRIGATED		98	1.5	57	87	60.7
STATE	3,500.0					
IRRIGATED		2	1.5	79	116	8.8
NON-IRRIGATED		86	1.4	50	68	204.8

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.

## PHOSPHATE USAGE BY APPLICATION METHOD

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
APPLICATION METHOD	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	1,071.0					
BRDCST W/O INCORP		11	1.0	23	23	2.7
BRDCST W/ INCORP		<u>3/</u>				
IN FURROW		16	1.0	28	28	4.8
INJECT/KNIFED						
BANDED		12	1.0	18	18	2.4
FOLIAR/DIRECT		<u>3/</u>				
REGION 2	1,712.0					
BRDCST W/O INCORP		6	1.0	31	31	3.1
BRDCST W/ INCORP		13	1.0	31	31	7.0
IN FURROW		15	1.0	23	23	6.0
INJECT/KNIFED		7	1.0	35	35	4.0
BANDED		10	1.0	25	25	4.3
FOLIAR/DIRECT		<u>3/</u>				
REGION 3	717.0					
BRDCST W/O INCORP		<u>3/</u>				
BRDCST W/ INCORP		36	1.0	37	38	9.7
IN FURROW		13	1.0	35	35	3.4
INJECT/KNIFED		<u>3/</u>				
BANDED		<u>3/</u>				
FOLIAR/DIRECT						
STATE	3,500.0					
BRDCST W/O INCORP		7	1.0	27	28	6.7
BRDCST W/ INCORP		15	1.0	34	35	18.2
IN FURROW		15	1.0	26	27	14.1
INJECT/KNIFED		6	1.0	35	35	7.3
BANDED		9	1.0	22	23	7.4
FOLIAR/DIRECT		1	1.0	30	31	0.9

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.

## PHOSPHATE USAGE BY TIMING OF APPLICATION

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
TIMING OF APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	1,071.0					
BEFORE SEEDING, FALL		8	1.0	29	30	2.5
BEFORE SEEDING, SPRING		<u>3/</u>				
AT SEEDING		28	1.0	24	24	7.2
AFTER SEEDING		<u>3/</u>				
REGION 2	1,712.0					
BEFORE SEEDING, FALL		8	1.0	29	30	4.0
BEFORE SEEDING, SPRING		14	1.0	31	31	7.5
AT SEEDING		28	1.0	24	24	11.8
AFTER SEEDING		<u>3/</u>				
REGION 3	717.0					
BEFORE SEEDING, FALL		<u>3/</u>				
BEFORE SEEDING, SPRING		37	1.0	39	39	10.5
AT SEEDING		22	1.0	35	35	5.6
AFTER SEEDING		<u>3/</u>				
STATE	3,500.0					
BEFORE SEEDING, FALL		8	1.0	30	30	8.3
BEFORE SEEDING, SPRING		16	1.1	33	35	19.5
AT SEEDING		26	1.1	25	27	24.5
AFTER SEEDING		2	1.0	36	36	2.1

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.

## PHOSPHATE USAGE BY STANDARD SOIL TEST

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
SOIL TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <sup>2/</sup>
	ASB ACRES (000)	PCT TREATED <sup>1/ 2/</sup>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	1,071.0					
WITH SOIL TEST		29	1.0	27	27	8.5
NO SOIL TEST		14	1.0	19	19	2.9
REGION 2	1,712.0					
WITH SOIL TEST		10	1.0	35	35	5.7
NO SOIL TEST		43	1.0	26	26	19.4
REGION 3	717.0					
WITH SOIL TEST		14	1.0	41	41	4.1
NO SOIL TEST		54	1.0	36	36	13.8
STATE	3,500.0					
WITH SOIL TEST		16	1.0	31	32	18.4
NO SOIL TEST		36	1.0	29	29	36.2

<sup>1/</sup> Refers to acres receiving one or more applications of a specific fertilizer ingredient.

<sup>2/</sup> May not add due to rounding.

## PHOSPHATE USAGE BY PLANT TISSUE TEST

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
PLANT TISSUE TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <sup>2/</sup>
	ASB ACRES (000)	PCT TREATED <sup>1/ 2/</sup>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	1,071.0					
WITH PLANT TEST						
NO PLANT TEST		43	1.0	24	25	11.4
REGION 2	1,712.0					
WITH PLANT TEST		<sup>3/</sup>				
NO PLANT TEST		52	1.0	28	28	25.1
REGION 3	717.0					
WITH PLANT TEST						
NO PLANT TEST		68	1.0	37	37	18.0
STATE	3,500.0					
WITH PLANT TEST		<sup>3/</sup>				
NO PLANT TEST		52	1.1	29	30	54.5

<sup>1/</sup> Refers to acres receiving one or more applications of a specific fertilizer ingredient.

<sup>2/</sup> May not add due to rounding.

## PHOSPHATE USAGE BY MANURE APPLICATION

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
MANURE APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <sub>2/</sub>
	ASB ACRES (000)	PCT TREATED <sub>1/ 2/</sub>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	1,071.0					
WITH MANURE		<u>3/</u>				
WITHOUT MANURE		42	1.0	24	24	11.0
REGION 2	1,712.0					
WITH MANURE		<u>3/</u>				
WITHOUT MANURE		52	1.0	28	28	25.1
REGION 3	717.0					
WITH MANURE		<u>3/</u>				
WITHOUT MANURE		64	1.0	37	37	16.9
STATE	3,500.0					
WITH MANURE		1	1.1	34	36	1.6
WITHOUT MANURE		51	1.1	28	30	52.9

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.

## PHOSPHATE USAGE BY IRRIGATION METHOD

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
METHOD OF IRRIGATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <sub>2/</sub>
	ASB ACRES (000)	PCT TREATED <sub>1/ 2/</sub>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	1,071.0					
IRRIGATED		5	1.0	24	24	1.4
NON-IRRIGATED		38	1.0	24	25	10.1
REGION 2	1,712.0					
IRRIGATED		<u>3/</u>				
NON-IRRIGATED		52	1.0	28	28	25.1
REGION 3	717.0					
IRRIGATED						
NON-IRRIGATED		68	1.0	37	37	18.0
STATE	3,500.0					
IRRIGATED		2	1.0	24	25	1.4
NON-IRRIGATED		50	1.1	29	30	53.1

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.

## POTASH USAGE BY APPLICATION METHOD

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
APPLICATION METHOD	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	1,071.0	<u>3/</u>				
REGION 2	1,712.0					
BRDCST W/O INCORP						
BRDCST W/ INCORP						
IN FURROW		<u>3/</u>				
INJECT/KNIFED		<u>3/</u>				
BANDED		3	1.1	6	6	0.3
REGION 3	717.0					
BRDCST W/O INCORP		<u>3/</u>				
BRDCST W/ INCORP		24	1.0	40	41	7.0
IN FURROW		<u>3/</u>				
INJECT/KNIFED						
BANDED		<u>3/</u>				
STATE	3,500.0					
BRDCST W/O INCORP		<u>3/</u>				
BRDCST W/ INCORP		4	1.3	40	50	7.0
IN FURROW		<u>3/</u>				
INJECT/KNIFED		<u>3/</u>				
BANDED		2	1.0	8	8	0.4

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.



## POTASH USAGE BY TIMING OF APPLICATION

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
TIMING OF APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	1,071.0	<u>3/</u>				
REGION 2	1,712.0					
BEFORE SEEDING, FALL						
BEFORE SEEDING, SPRING		<u>3/</u>				
AT SEEDING		4	1.1	8	9	0.6
AFTER SEEDING						
REGION 3	717.0					
BEFORE SEEDING, FALL		<u>3/</u>				
BEFORE SEEDING, SPRING		19	1.0	47	47	6.5
AT SEEDING		<u>3/</u>				
AFTER SEEDING		<u>3/</u>				
STATE	3,500.0					
BEFORE SEEDING, FALL		<u>3/</u>				
BEFORE SEEDING, SPRING		4	1.0	46	46	6.5
AT SEEDING		3	1.2	12	14	1.6
AFTER SEEDING		<u>3/</u>				

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.

## POTASH USAGE BY STANDARD SOIL TEST

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
SOIL TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	1,071.0	<u>3/</u>				
REGION 2	1,712.0					
WITH SOIL TEST		<u>3/</u>				
NO SOIL TEST		3	1.1	6	6	0.4
REGION 3	717.0					
WITH SOIL TEST		9	1.0	45	45	3.0
NO SOIL TEST		21	1.0	33	34	5.1
STATE	3,500.0					
WITH SOIL TEST		2	1.4	33	46	3.3
NO SOIL TEST		5	1.4	23	32	5.5

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.

## POTASH USAGE BY PLANT TISSUE TEST

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
PLANT TISSUE TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u> <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	1,071.0	<u>3/</u>				
REGION 2	1,712.0					
WITH PLANT TEST						
NO PLANT TEST		4	1.1	9	9	0.6
REGION 3	717.0					
WITH PLANT TEST						
NO PLANT TEST		31	1.0	37	37	8.1
STATE	3,500.0					
WITH PLANT TEST						
NO PLANT TEST		7	1.4	26	36	8.8

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.

## POTASH USAGE BY MANURE APPLICATION

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
MANURE APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) 2/
	ASB ACRES (000)	PCT TREATED 1/ 2/	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	1,071.0	3/				
REGION 2	1,712.0					
WITH MANURE						
WITHOUT MANURE		4	1.1	9	9	0.6
REGION 3	717.0					
WITH MANURE		3/				
WITHOUT MANURE		28	1.0	38	38	7.8
STATE	3,500.0					
WITH MANURE		3/				
WITHOUT MANURE		7	1.4	26	37	8.5

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.

## POTASH USAGE BY IRRIGATION METHOD

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
METHOD OF IRRIGATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) 2/
	ASB ACRES (000)	PCT TREATED 1/ 2/	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	1,071.0	3/				
REGION 2	1,712.0					
IRRIGATED						
NON-IRRIGATED		4	1.1	9	9	0.6
REGION 3	717.0					
IRRIGATED						
NON-IRRIGATED		31	1.0	37	37	8.1
STATE	3,500.0					
IRRIGATED						
NON-IRRIGATED		7	1.4	26	36	8.8

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.

## GENERAL FERTILIZER PRACTICES

SORGHUM: SPECIAL PRACTICES BY REGION, 1998 Percent Usage						
REGION	PERFORMED STANDARD SOIL TESTS	PERFORMED PLANT TISSUE TESTS	PERFORMED A NITROGEN SOIL TEST	AMOUNT APPLIED COMPARED TO RECOMMENDATIONS		
				MORE THAN	LESS THAN	SAME AS
----- PERCENT -----			----- PERCENT -----			
REGION 1	31		28	14	33	53
REGION 2	12	1/	10	0	25	75
REGION 3	23	1/	21	25	13	62
STATE	18	1/	16	11	27	62

1/ Insufficient data to publish.

SORGHUM: MANURE USAGE BY REGION, 1998					
REGION	PERCENT APPLYING MANURE	PERCENT OF ACRES WITH MANURE APPLIED	AVG. TONS APPLIED PER ACRE	HOW APPLIED	
				DRY BROADCAST WITHOUT INCORP.	DRY BROADCAST WITH INCORP.
				----- PERCENT -----	
REGION 1	1/				
REGION 2	1/				
REGION 3	1/				
STATE	3	1	5	78	22

1/ Insufficient data to publish.

SORGHUM: SOURCE OF MANURE BY REGION, 1998		
REGION	BEEF	DAIRY
	----- PERCENT -----	
REGION 1	1/	
REGION 2	1/	1/
REGION 3	1/	
STATE	89	11

1/ Insufficient data to publish

SORGHUM: MANURE OBTAINED BY REGION, 1998	
REGION	PRODUCED ON OPERATION
	----- PERCENT -----
REGION 1	1/
REGION 2	1/
REGION 3	1/
STATE	100

1/ Insufficient data to publish.

## GENERAL FERTILIZER PRACTICES

SORGHUM: LIME APPLICATION BY REGION, 1998 Percent Usage			
REGION	LIME APPLIED	AVERAGE YEARS BETWEEN APPLICATIONS	AVERAGE APPLICATION RATES
	PERCENT		TONS PER ACRE
REGION 1			
REGION 2	13	7	2.1
REGION 3	37	11	2.6
STATE	13	9	2.3

SORGHUM: SULFUR APPLICATIONS BY REGION, 1998 Percent Usage		
REGION	SULFUR APPLIED	RATE PER APPLICATION
	PERCENT	POUNDS PER ACRE
REGION 1	3	<u>1/</u>
REGION 2	5	7
REGION 3	6	<u>1/</u>
STATE	4	6

1/ Insufficient data to publish.

SORGHUM: MICRO NUTRIENTS BY REGION, 1998 Percent Usage			
REGION	MICRO NUTRIENTS APPLIED	THOSE WHO APPLIED MICRO NUTRIENTS APPLIED THE FOLLOWING PRODUCTS	
		ZINC	OTHER
		----- PERCENT -----	
REGION 1	8	100	
REGION 2	2	<u>1/</u>	<u>1/</u>
REGION 3			
STATE	4	83	17

1/ Insufficient data to publish.

## PESTICIDE USAGE BY TYPE OF PESTICIDE

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND TOTAL POUNDS APPLIED, BY REGION, 1998			
TYPE OF PESTICIDE	PLANTED ACRES		TOTAL APPLIED <u>2/</u> (000) LBS
	ASB ACRES (000)	PCT TREATED <u>1/</u>	
REGION 1	1,071.0		
HERBICIDES		92	1,994.0
INSECTICIDES		16	100.0
REGION 2	1,712.0		
HERBICIDES		88	3,892.0
INSECTICIDES		9	58.0
REGION 3	717.0		
HERBICIDES		100	1,854.0
INSECTICIDES		<u>3/</u>	
STATE	3,500.0		
HERBICIDES		91	7,740.0
INSECTICIDES		11	158.0

1/ Refers to acres receiving one or more applications of a specific pesticide ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.



# PESTICIDE USAGE BY ACTIVE INGREDIENT

**SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998**

TYPE OF PESTICIDE	PLANTED ACRES		APPLICATION RATES LBS/ACRE			TOTAL APPLIED CROP YEAR (000) LBS 2/
	ASB ACRES (000)	PCT TREATED 1/	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	1,071.0					
2,4-D		29	1.2	0.25	0.31	97.6
ALACHLOR		14	1.0	2.01	2.01	302.2
ATRAZINE		85	1.0	1.06	1.10	999.6
BROMOXYNIL		9	1.0	0.31	0.31	31.0
CHLORPYRIFOS		19	1.0	0.38	0.38	76.9
DICAMBA		10	1.2	0.19	0.24	25.2
DIMETHENAMID		3/				
GLYPHOSATE		30	1.4	0.38	0.54	175.9
METHOMYL		3/				
METOLACHLOR		18	1.0	1.35	1.37	270.6
PROPACHLOR		3/				
PROSULFURON		3/				
REGION 2	1,712.0					
2,4-D		18	1.0	0.34	0.34	102.4
ALACHLOR		5	1.0	1.54	1.54	128.1
ATRAZINE		76	1.2	1.13	1.32	1,727.2
BROMOXYNIL						
CHLORPYRIFOS		3/				
DICAMBA		15	1.2	0.24	0.28	71.8
DIMETHENAMID		10	1.0	1.28	1.28	208.3
GLYPHOSATE		17	1.6	0.51	0.80	238.1
METHOMYL		3/				
METOLACHLOR		50	1.0	1.61	1.61	1,368.4
PROPACHLOR		3/				
PROSULFURON		11	1.0	0.02	0.02	4.6
REGION 3	717.0					
2,4-D		3/				
ALACHLOR		17	1.0	2.23	2.23	264.7
ATRAZINE		98	1.0	1.18	1.20	845.2
BROMOXYNIL						
CHLORPYRIFOS						
DICAMBA						
DIMETHENAMID						
GLYPHOSATE						
METHOMYL		3/				
METOLACHLOR		55	1.0	1.45	1.45	568.0
PROPACHLOR		3/				
PROSULFURON		3/				
STATE	3,500.0					
2,4-D		18	1.1	0.29	0.33	205.0
ALACHLOR		10	1.0	1.93	1.93	695.0
ATRAZINE		82	1.1	1.12	1.24	3,572.0
BROMOXYNIL		3	1.0	0.31	0.31	31.0
CHLORPYRIFOS		5	1.0	0.44	0.44	79.0
DICAMBA		10	1.2	0.22	0.27	97.0
DIMETHENAMID		5	1.0	1.26	1.26	215.0
GLYPHOSATE		17	1.5	0.45	0.71	414.0
METHOMYL		3	1.0	0.25	0.25	23.0
METOLACHLOR		40	1.0	1.55	1.56	2,207.0
PROPACHLOR		3	1.0	2.44	2.44	249.0
PROSULFURON		5	1.0	0.02	0.02	5.0

1/ Refers to acres receiving one or more applications of specific pesticide ingredient. 2/ May not add due to rounding. 3/ Insufficient reports to publish.

# PESTICIDE USAGE BY TARGET PEST

## BROADLEAVES, ALL

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
TYPE OF PESTICIDE	PLANTED ACRES		APPLICATION RATES LBS/ACRE			TOTAL APPLIED CROP YEAR (000) LBS 2/
	ASB ACRES (000)	PCT TREATED 1/	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	1,071.0					
2,4-D		26	1.3	0.26	0.32	92.0
ALACHLOR		16	1.0	2.02	2.02	336.7
ATRAZINE		60	1.0	1.30	1.23	794.8
DICAMBA		9	1.1	0.19	0.21	19.7
GLYPHOSATE		19	1.6	0.40	0.62	129.1
METOLACHLOR		7	1.0	1.53	1.53	111.2
PROSULFURON		3/				
REGION 2	1,712.0					
2,4-D		13	1.0	0.30	0.30	69.7
ALACHLOR		3/				
ATRAZINE		53	1.1	1.14	1.23	1,109.2
DICAMBA		14	1.2	0.24	0.28	66.6
GLYPHOSATE		15	1.5	0.54	0.83	211.8
METOLACHLOR		18	1.0	1.57	1.59	499.1
PROSULFURON		9	1.0	0.02	0.02	3.8
REGION 3	717.0					
2,4-D		3/				
ALACHLOR		3/				
ATRAZINE		50	1.0	1.05	0.84	299.9
DICAMBA						
GLYPHOSATE						
METOLACHLOR		18	1.0	1.39	1.39	181.8
PROSULFURON		3/				
STATE	3,500.0					
2,4-D		15	1.1	0.28	0.31	167.0
ALACHLOR		6	1.0	1.98	1.98	405.0
ATRAZINE		54	1.0	1.18	1.18	2,204.0
DICAMBA		9	1.2	0.23	0.26	86.0
GLYPHOSATE		13	1.6	0.48	0.74	341.0
METOLACHLOR		15	1.0	1.54	1.55	792.0
PROSULFURON		5	1.0	0.02	0.02	5.0

1/ Refers to acres receiving one or more applications of a specific pesticide ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.



# PESTICIDE USAGE BY TARGET PEST

## GRASSES, ANNUAL

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998						
TYPE OF PESTICIDE	PLANTED ACRES		APPLICATION RATES LBS/ACRE			TOTAL APPLIED CROP YEAR (000) LBS <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	1,071.0					
ALACHLOR						
ATRAZINE		10	1.1	0.72	0.76	77.0
DIMETHENAMID		<u>3/</u>				
GLYPHOSATE		10	1.0	0.35	0.35	37.0
METOLACHLOR		<u>3/</u>				
PROPACHLOR		<u>3/</u>				
REGION 2	1,712.0					
ALACHLOR		6	1.0	1.39	1.39	135.0
ATRAZINE		24	1.0	1.09	1.09	453.0
DIMETHENAMID		<u>3/</u>				
GLYPHOSATE		<u>3/</u>				
METOLACHLOR		30	1.0	1.62	1.62	829.0
PROPACHLOR		<u>3/</u>				
REGION 3	717.0					
ALACHLOR		<u>3/</u>				
ATRAZINE		<u>3/</u>				
DIMETHENAMID						
GLYPHOSATE						
METOLACHLOR		<u>3/</u>				
PROPACHLOR						
STATE	3,500.0					
ALACHLOR		3	1.0	1.58	1.58	152.0
ATRAZINE		17	1.0	1.03	1.03	616.0
DIMETHENAMID		<u>3/</u>				
GLYPHOSATE		4	1.0	0.36	0.36	54.0
METOLACHLOR		16	1.0	1.60	1.60	910.0
PROPACHLOR		<u>3/</u>				

1/ Refers to acres receiving one or more applications of a specific pesticide ingredient. 2/ May not add due to rounding. 3/ Insufficient data to publish.

## HERBICIDE USAGE BY APPLICATION METHOD

SORGHUM: TOTAL ACREAGE AND PERCENT OF ACRES TREATED BY REGION, 1998		
APPLICATION METHOD	ACRES	
	ASB ACRES (000)	PCT ACRES TREATED 1/
REGION 1	1,071.0	
BRDCST W/O INCORP		47
BRDCST W/ INCORP		4
BROADCAST AIR		2/
BANDED		2/
FOLIAR/DIRECT		17
SPOT TREAT		
REGION 2	1,712.0	
BRDCST W/O INCORP		41
BRDCST W/ INCORP		20
BROADCAST AIR		2/
BANDED		4
FOLIAR/DIRECT		27
SPOT TREAT		2/
REGION 3	717.0	
BRDCST W/O INCORP		13
BRDCST W/ INCORP		11
BROADCAST AIR		
BANDED		18
FOLIAR/DIRECT		66
SPOT TREAT		
STATE	3,500.0	
BRDCST W/O INCORP		37
BRDCST W/ INCORP		11
BROADCAST AIR		3
BANDED		16
FOLIAR/DIRECT		13
SPOT TREAT		2/

1/ Refers to acres receiving one or more applications of a specific herbicide ingredient. 2/ Insufficient data to publish.

## HERBICIDE USAGE BY TIMING OF APPLICATION

SORGHUM: TOTAL ACREAGE AND PERCENT OF ACRES TREATED BY REGION, 1998		
TIMING OF APPLICATION <u>1/</u>	ACRES	
	ASB ACRES (000)	PCT ACRES TREATED <u>2/</u>
REGION 1	1,071.0	
BEFORE PLANTING		44
AT PLANTING		<u>3/</u>
AFTER PLANTING		53
REGION 2	1,712.0	
BEFORE PLANTING		54
AT PLANTING		6
AFTER PLANTING		40
REGION 3	717.0	
BEFORE PLANTING		19
AT PLANTING		16
AFTER PLANTING		76
STATE	3,500.0	
BEFORE PLANTING		44
AT PLANTING		8
AFTER PLANTING		51

1/ At planting is defined as 3 days before planting to 3 days after planting. 2/ Refers to acres receiving one or more applications of a specific herbicide ingredient. 3/ Insufficient data to publish.

## HERBICIDE USAGE BY APPLICATOR

SORGHUM: TOTAL ACREAGE AND PERCENT OF ACRES TREATED BY REGION, 1998		
APPLICATION MADE BY	ACRES	
	ASB ACRES (000)	PCT ACRES TREATED <u>1/</u>
REGION 1	1,071.0	
OPERATOR		55
CUSTOM		41
EMPLOYEE		
REGION 2	1,712.0	
OPERATOR		19
CUSTOM		70
EMPLOYEE		<u>2/</u>
REGION 3	717.0	
OPERATOR		68
CUSTOM		38
EMPLOYEE		
STATE	3,500.0	
OPERATOR		40
CUSTOM		54
EMPLOYEE		<u>2/</u>

1/ Refers to acres receiving one or more applications of a specific herbicide ingredient.

2/ Insufficient data to publish.

## INSECTICIDE USAGE BY APPLICATION METHOD

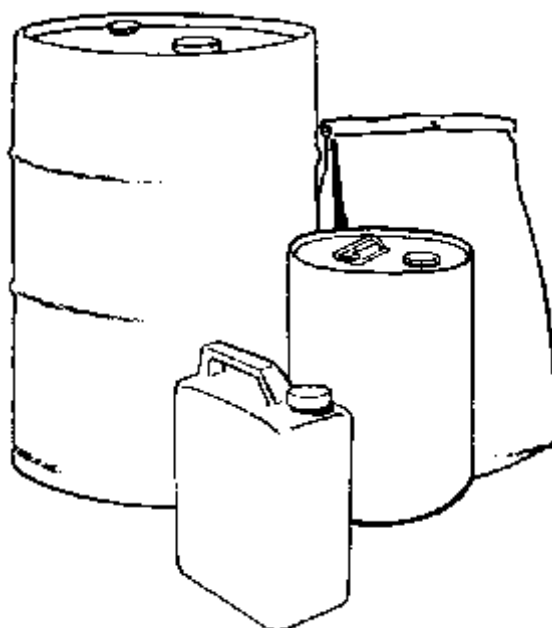
SORGHUM: TOTAL ACREAGE AND PERCENT OF ACRES TREATED BY REGION, 1998		
APPLICATION METHOD	ACRES	
	ASB ACRES (000)	PCT ACRES TREATED 1/
REGION 1	1,071.0	
BRDCST W/O INCORP		
BRDCST BY AIR		16
IN FURROW		
BANDED		
REGION 2	1,712.0	
BRDCST W/O INCORP		2/
BRDCST BY AIR		2/
IN FURROW		2/
BANDED		
REGION 3	717.0	
BRDCST W/O INCORP		
BRDCST BY AIR		2/
IN FURROW		
BANDED		2/
STATE	3,500.0	
BRDCST W/O INCORP		2/
BRDCST BY AIR		9
IN FURROW		2/
BANDED		2/

1/ Refers to acres receiving one or more applications of a specific insecticide ingredient. 2/ Insufficient data to publish.

## INSECTICIDE USAGE BY TIMING OF APPLICATION

SORGHUM: TOTAL ACREAGE AND PERCENT OF ACRES TREATED BY REGION, 1998		
TIMING OF APPLICATION <u>1/</u>	ACRES	
	ASB ACRES (000)	PCT ACRES TREATED <u>2/</u>
REGION 1	1,071.0	
AT PLANTING		
AFTER PLANTING		16
REGION 2	1,712.0	
AT PLANTING		<u>3/</u>
AFTER PLANTING		7
REGION 3	717.0	
AT PLANTING		
AFTER PLANTING		<u>3/</u>
STATE	3,500.0	
AT PLANTING		<u>3/</u>
AFTER PLANTING		9

1/ At planting is defined as 3 days before planting to 3 days after planting. 2/ Refers to acres receiving one or more applications of a specific insecticide ingredient. 3/ Insufficient data to publish.



## INSECTICIDE USAGE BY APPLICATOR

SORGHUM: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1998		
APPLICATION MADE BY	PLANTED ACRES	
	ASB ACRES (000)	PCT TREATED 1/
REGION 1	1,071.0	
OPERATOR		
CUSTOM		16
REGION 2	1,712.0	
OPERATOR		2/
CUSTOM		7
REGION 3	717.0	
OPERATOR		2/
CUSTOM		2/
STATE	3,500.0	
OPERATOR		2/
CUSTOM		9

1/ Refers to acres receiving one or more applications of a specific insecticide ingredient.

2/ Insufficient data to publish.

## RECORDS USE

SORGHUM: USE OF RECORDS TO PROVIDE SURVEY DATA BY REGION, 1998		
REGION	FERTILIZER	PESTICIDE
	----- PERCENT -----	
REGION 1	52	47
REGION 2	36	41
REGION 3	36	39
STATE	40	42

## PEST MANAGEMENT PRACTICES

SORGHUM: FIELD SCOUTING FOR PESTS BY REGION, 1998					
PEST BY REGION	SCOUTED PERCENT	BY			
		OPERATOR	EMPLOYEE	DEALER	CONSULTANT
----- PERCENT -----					
FOR WEEDS					
REGION 1	88	88		1/	11
REGION 2	78	96		1/	1/
REGION 3	85	97			1/
STATE	82	94		2	4
FOR INSECTS					
REGION 1	82	88			12
REGION 2	75	95		4	1/
REGION 3	74	97			1/
STATE	77	94		2	4
FOR DISEASES					
REGION 1	73				
REGION 2	68				
REGION 3	64				
STATE	69				

1/ Insufficient data to publish.

SORGHUM: RECORDS OF SCOUTING BY REGION, 1998	
REGION	KEPT RECORDS
----- PERCENT -----	
REGION 1	26
REGION 2	8
REGION 3	12
STATE	14

SORGHUM: CULTIVATED FOR WEED CONTROL BY REGION, 1998	
REGION	CULTIVATED
----- PERCENT -----	
REGION 1	22
REGION 2	15
REGION 3	31
STATE	19



## PEST MANAGEMENT PRACTICES

SORGHUM: APPLIED PRE-EMERGENCE HERBICIDES BY REGION, 1998					
REGION	APPLIED PERCENT	BASED ON			
		ROUTINE TREATMENT	FIELD MAPPING	DEALER	CROP CONSULTANT
		----- PERCENT -----			
REGION 1	55	71		41	<u>1/</u>
REGION 2	83	87	7	29	9
REGION 3	74	93	17	24	<u>1/</u>
STATE	74	84	7	31	9

1/ Insufficient data to publish.

SORGHUM: APPLIED POST-EMERGENCE HERBICIDES BY REGION, 1998					
REGION	APPLIED PERCENT	BASED ON			
		ROUTINE TREATMENT	TYPE &/OR DENSITY OF WEEDS	DEALER	CROP CONSULTANT
		----- PERCENT -----			
REGION 1	36	<u>1/</u>	59	33	<u>1/</u>
REGION 2	16	23	65	<u>1/</u>	
REGION 3	38	80	40	<u>1/</u>	
STATE	25	31	57	24	<u>1/</u>

1/ Insufficient data to publish.

SORGHUM: APPLIED INSECTICIDES, BY REGION, 1998					
REGION	BASED ON				
	PREVENTATIVE SCHEDULE	SCOUTING DATA COMPARED TO UNIV. GUIDELINES	STANDARD PRACTICES	LOCAL INFORMATION	OPERATOR'S DETERMINATION OF INFESTATION
----- PERCENT -----					
REGION 1	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	9
REGION 2	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	5
REGION 3					<u>1/</u>
STATE	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	7

1/ Insufficient data to publish.

## PEST MANAGEMENT PRACTICES

SORGHUM: SPECIAL PRACTICES BY REGION, 1998				
REGION	PLANTING/ HARVESTING DATES ADJUSTED	ALTERNATE PESTICIDES YEAR-TO-YEAR	BIOLOGICAL SOIL ANALYSIS TO DETECT PESTS	CONSIDER BENEFICIAL INSECTS IN SELECTING PESTICIDES
----- PERCENT -----				
REGION 1	14	22	1/	14
REGION 2	7	17		7
REGION 3	8	36		1/
STATE	9	21	1/	8

1/ Insufficient data to publish.

SORGHUM: INFORMATION SOURCES BY REGION, 1998					
REGION	UNIVERSITY RESEARCH AND EXTENSION	FARM SUPPLY	COMMERCIAL SCOUTING	CROP CONSULTANT	OTHER GROWERS
----- PERCENT -----					
REGION 1	8	57	1/	14	1/
REGION 2	8	66	1/	4	1/
REGION 3	1/	56		1/	1/
STATE	8	62	1/	7	3

1/ Insufficient data to publish.

REGION	PRODUCER ASSOCIATION	OTHER	NONE
----- PERCENT -----			
REGION 1	1/	1/	9
REGION 2	4	5	10
REGION 3	1/	1/	13
STATE	3	5	10

1/ Insufficient data to publish.

SORGHUM: PESTICIDE USE TRAINING BY REGION, 1998		
REGION	OPERATOR RECEIVED PEST IDENTIFICATION & MANAGEMENT TRAINING	OPERATOR CERTIFIED FOR APPLYING "RESTRICTED USE" PESTICIDES
----- PERCENT -----		
REGION 1	31	73
REGION 2	12	45
REGION 3	15	64
STATE	18	55

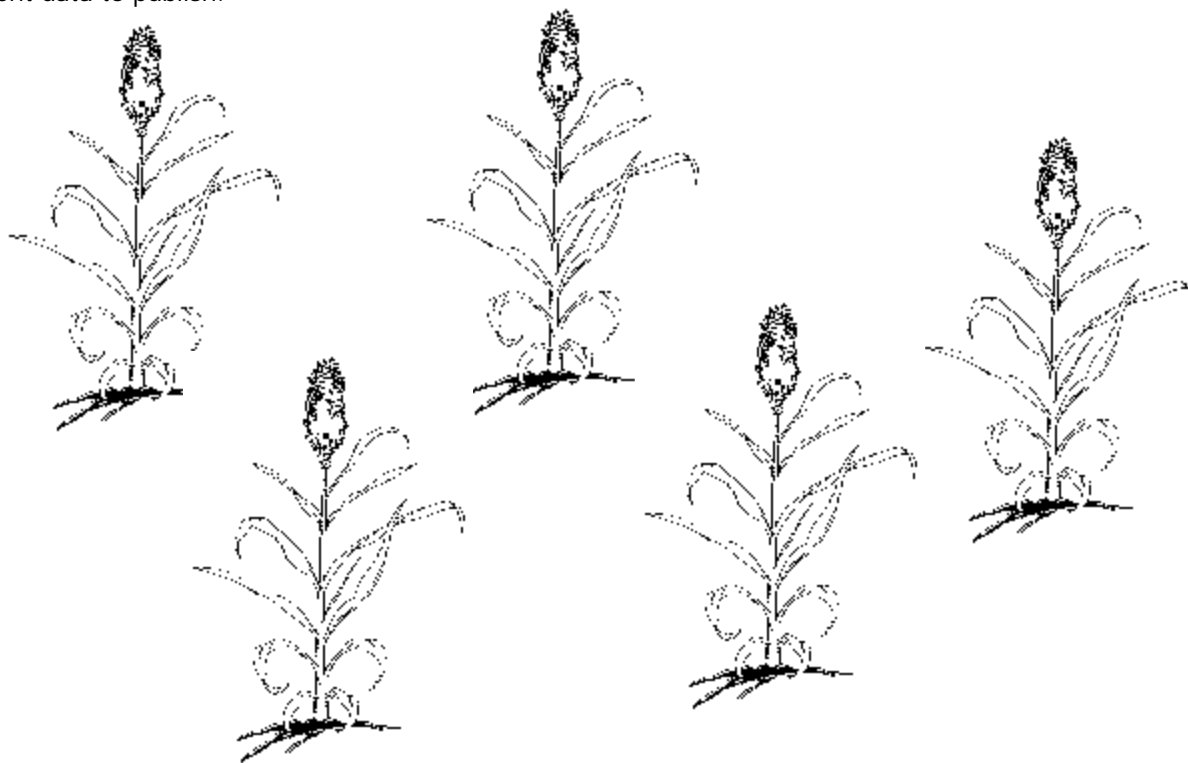
## PEST MANAGEMENT PRACTICES

SORGHUM: WEED HERBICIDE RESISTANCE BY REGION, 1998				
REGION	AWARE OF HERBICIDE RESISTANCE	HERBICIDE		
		ATRAZINE	ROUND UP	MISC/UNK
----- PERCENT -----				
REGION 1	16	58	17	25
REGION 2	18	28	11	61
REGION 3	<u>1</u> /			<u>1</u> /
STATE	16	38	13	50

1/ Insufficient data to publish.

SORGHUM: HERBICIDE RESISTANT WEEDS, 1998					
REGION	PIGWEEED	VELVET WEED	KOCHIA	GRASSES	OTHER
----- PERCENT -----					
REGION 1	56		22	33	
REGION 2	50	30	10	15	10
REGION 3				<u>1</u> /	<u>1</u> /
STATE	48	19	13	23	10

1/ Insufficient data to publish.



# SORGHUM: HANDLING OF CHEMICALS

